

What is claimed is:

1. In a communications system apparatus with an Ethernet backplane and at least one internal occupant, a method for identifying internal occupants comprising:

5                    verifying that a system switch processor ("SSP") has been assigned an IP address;

                  requesting a discovery protocol data package from said SSP;

                  determining whether said discovery protocol data package corresponds to said at least one internal occupant; and

10                   if said discovery protocol data package corresponds to said at least one internal occupant, then discovering occupant information corresponding to said at least one internal occupant.

2. The method of Claim 1, including the additional act of determining whether said at least one internal occupant is the last internal occupant in said apparatus.

15                   3. The method of Claim 1 further including after said query of determining whether said discovery protocol data package corresponds to said at least one internal occupant, the additional act of:

                  determining whether said at least one internal occupant has a valid

                  IP address, if the discovery protocol data package corresponds to said at least one internal occupant.

20                   4. The method of Claim 1 including the additional act of populating a data table with said at least one internal occupant's information.

5. The method of Claim 1 wherein the act of discovering occupant information corresponding to said at least one internal occupant further comprises:

determining whether said at least one internal occupant is a multiservice route processor;

5 discovering multiservice route processor information from said at least one internal occupant, if said at least one internal occupant is a multiservice route processor;

determining whether said at least one internal occupant is a system processing engine;

10 discovering system processing engine information from said at least one internal occupant, if said at least one internal occupant is a system processing engine; and

indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.

15 6. In a communications system apparatus with an Ethernet backplane and at least one internal occupant, a method for cyclically identifying occupants comprising:

requesting a link status from a SSP;

determining whether all of said at least one internal occupant in the communications system apparatus have been discovered;

20 waiting for next cycle if all of said at least one internal occupant in the communications system apparatus have been discovered;

determining whether said link status corresponds to said at least one internal occupant, if all of said at least one internal occupant in the communications system have not been discovered;

determining whether said link status is up and a slot corresponding to said link is not occupied, if said link status corresponds to said at least one internal occupant;

launching a slot discovery, if said link status is up and said slot corresponding to said link is not occupied;

determining whether said link status is down and said slot corresponding to said link status is occupied, if said link status is not up and said slot is not occupied; and

identifying said at least one internal occupant as non-operational, if said link status is down and the said slot is occupied.

7. The method of claim 6 wherein the act of launching a slot discovery further comprises:

requesting a discovery protocol data package from said SSP;

determining whether said discovery protocol data package corresponds to said at least one internal occupant;

determining whether said apparatus occupant has a valid IP address, if said discovery protocol data package corresponds to said at least one internal occupant;

determining whether said requested discovery protocol data package corresponds to said slot, if said at least one internal occupant has a valid IP address; and

discovering occupant information corresponding to said particular  
5 internal apparatus occupant, if the discovery protocol data package corresponds to said slot.

8. The method of Claim 7 wherein the act of discovering occupant information corresponding to said at least one internal occupant further comprises:

determining whether said at least one internal occupant is a  
10 multiservice route processor;

discovering multiservice route processor information from said at  
least one internal occupant, if said at least one internal occupant is a  
multiservice route processor;

determining whether said at least one internal occupant is a system  
15 processing engine, if said at least one internal occupant is not a multiservice route processor;

discovering system processing engine information from said at least  
one internal occupant, if said at least one internal occupant is a system  
processing engine; and

20 indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.

9. In a communications system apparatus with an Ethernet backplane and at least one occupant installed in at least one slot, a method for cyclically identifying occupants comprising:

requesting a discovery protocol data package from a SSP;

5

determining whether all of said at least one slot in the communications system apparatus have been discovered;

marking said at least one slot that have no discovery protocol information as empty, then waiting for a next cycle to begin, if all of said at least one slot in the communications system apparatus have been discovered;

10

determining whether said discovery protocol data package corresponds to said at least one internal occupant, if one of said at least one slot in the communications system apparatus has not been discovered

15

determining whether said discovery protocol data package is consistent with a discovery protocol data package previously obtained, if the said discovery protocol data package corresponds to said at least one internal occupant; and

20

launching a slot discovery, if said discovery protocol data package is not consistent with said previously obtained discovery protocol data package.

10. The method of claim 9 wherein said act of launching a slot discovery further comprises:

requesting a discovery protocol data package from said SSP;  
determining whether said discovery protocol data package  
corresponds to said at least one internal occupant;  
determining whether said at least one internal occupant has a valid  
5 IP address, if the discovery protocol data package corresponds to said at  
least one internal occupant;  
determining whether said discovery protocol data package  
corresponds to a slot housing said at least one occupant, if said at least one  
internal occupant has a valid IP address; and

10 discovering occupant information corresponding to said at least one  
internal occupant, if said discovery protocol data package corresponds to  
said slot.

11. The method of Claim 10 wherein said act of discovering occupant  
information corresponding to said at least one internal occupant further comprises:

15 determining whether said at least one internal occupant is a  
multiservice route processor;

discovering multiservice route processor information from said at  
least one internal occupant, if said at least one internal occupant is a  
multiservice route processor;

20 determining whether said at least one internal occupant is a system  
processing engine, if said at least one internal occupant is not a multiservice  
route processor;

discovering system processing engine information from said at least one internal occupant, if said at least one internal occupant is a system processing engine; and

indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.

12. A communications system apparatus comprising:

an Ethernet backplane;

at least one internal occupant operatively coupled to said backplane;

wherein said at least one internal apparatus occupant is configured to identify internal other occupants of said communications system apparatus.

13. The communications system apparatus of Claim 12, wherein said at least one internal occupant is further configured to:

verify that a system switch processor ("SSP") has been assigned an IP address;

request a discovery protocol data package from said SSP;

determine whether said discovery protocol data package corresponds to said at least one internal occupant; and

discover occupant information corresponding to said at least one internal occupant if said discovery protocol data package corresponds to said at least one internal occupant.

14. The communications system apparatus of Claim 13, wherein said at least one internal occupant is further configured to determine whether said at least one internal occupant is the last internal occupant in said apparatus.

15. The communications system apparatus of Claim 13, wherein said at least one internal occupant is further configured to determine whether said at least one internal occupant has a valid IP address, if the discovery protocol data package corresponds to said at least one internal occupant.

16. The communications system apparatus of Claim 13, wherein said at least one internal occupant is further configured to populate a data table with said at least one internal occupant's information.

17. A communications system apparatus comprising:

an Ethernet backplane;

at least one internal occupant operatively coupled to said backplane;

wherein said at least one internal apparatus occupant is configured to:

request a link status from a SSP;

determine whether all of said at least one internal occupant in the communications system apparatus have been discovered;

wait for next cycle if all of said at least one internal occupant in the communications system apparatus have been discovered;

determine whether said link status corresponds to said at least one internal occupant, if all of said at least one internal occupant in the communications system have not been discovered;



determine whether said link status is up and a slot  
corresponding to said link is not occupied, if said link status  
corresponds to said at least one internal occupant;

launch a slot discovery, if said link status is up and said slot  
corresponding to said link is not occupied;

determine whether the said link status is down and said slot  
corresponding to said link status is occupied, if the said link status is  
not up and the said slot is not occupied; and

identify the said at least one internal occupant as non-  
operational, if the said link status is down and the said slot is  
occupied.

18. A communications system apparatus comprising:

an Ethernet backplane;

at least one internal occupant operatively coupled to said backplane;

wherein said at least one internal apparatus occupant is configured to:

request a discovery protocol data package from a SSP;

determine whether all of said at least one slot in the  
communications system apparatus have been discovered;

mark said at least one slot that have no discovery protocol  
information as empty, then waiting for a next cycle to begin, if all of  
said at least one slot in the communications system apparatus have  
been discovered;

determine whether said discovery protocol data package corresponds to said at least one internal occupant, if one of said at least one slot in the communications system apparatus has not been discovered;

5                   determine whether said discovery protocol data package is consistent with a discovery protocol data package previously obtained, if the said discovery protocol data package corresponds to said at least one internal occupant; and

                  launch a slot discovery, if said discovery protocol data package is not consistent with said previously obtained discovery protocol data package.

19.   An apparatus for identifying internal occupants of a communications system apparatus with an Ethernet backplane and at least one internal occupant comprising:

15                   means for verifying that a system switch processor ("SSP") has been assigned an IP address;

                  means for requesting a discovery protocol data package from said SSP;

                  means for determining whether said discovery protocol data package  
20                   corresponds to said at least one internal occupant; and

means for discovering occupant information corresponding to said at least one internal occupant, if said discovery protocol data package corresponds to said at least one internal occupant.

20. The apparatus of Claim 19, further comprising the additional means for  
5 determining whether said at least one internal occupant is the last internal occupant in said apparatus.

21. The apparatus of Claim 19 further comprising the additional means for determining whether said at least one internal occupant has a valid IP address, if  
10 the discovery protocol data package corresponds to said at least one internal occupant.

22. The apparatus of Claim 19 further comprising the additional means for populating a data table with said at least one internal occupant's information.

23. An apparatus for cyclically identifying internal occupants of a communications system apparatus with an Ethernet backplane and at least one  
15 internal occupant comprising:

means for requesting a link status from a SSP;

means for determining whether all of said at least one internal occupant in the communications system apparatus have been discovered;

means for waiting for next cycle if all of said at least one internal  
20 occupant in the communications system apparatus have been discovered;

means for determining whether said link status corresponds to said at least one internal occupant, if all of said at least one internal occupant in the communications system have not been discovered;

means for determining whether said link status is up and a slot corresponding to said link is not occupied, if said link status corresponds to said at least one internal occupant;

means for launching a slot discovery, if said link status is up and said slot corresponding to said link is not occupied;

means for determining whether the said link status is down and said slot corresponding to said link status is occupied, if the said link status is not up and the said slot is not occupied; and

means for identifying the said at least one internal occupant as non-operational, if the said link status is down and the said slot is occupied.

24. An apparatus for cyclically identifying internal occupants of a communications system apparatus with an Ethernet backplane and at least one internal occupant comprising:

means for requesting a discovery protocol data package from a SSP;

means for determining whether all of said at least one slot in the communications system apparatus have been discovered;

means for marking said at least one slot that have no discovery protocol information as empty, then waiting for a next cycle to begin, if all

of said at least one slot in the communications system apparatus have been discovered;

means for determining whether said discovery protocol data package corresponds to said at least one internal occupant, if one of said at least one slot in the communications system apparatus has not been discovered

means for determining whether said discovery protocol data package is consistent with a discovery protocol data package previously obtained, if the said discovery protocol data package corresponds to said at least one internal occupant; and

means for launching a slot discovery, if said discovery protocol data package is not consistent with said previously obtained discovery protocol data package.

25. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for identifying internal occupants of a communications system apparatus with an Ethernet backplane and at least one internal occupant, said method comprising:

verifying that a system switch processor ("SSP") has been assigned an IP address;

requesting a discovery protocol data package from said SSP;

determining whether said discovery protocol data package corresponds to said at least one internal occupant; and

if said discovery protocol data package corresponds to said at least one internal occupant, then discovering occupant information corresponding to said at least one internal occupant.

26. The program storage device of Claim 25, wherein said method includes the additional act of determining whether said at least one internal occupant is the last internal occupant in said apparatus.

27. The program storage device of Claim 25, wherein said method further includes after said query of determining whether said discovery protocol data package corresponds to said at least one internal occupant, the additional act of:

determining whether said at least one internal occupant has a valid IP address, if the discovery protocol data package corresponds to said at least one internal occupant.

28. The program storage device of Claim 25, wherein said method includes the additional act of populating a data table with said at least one internal occupant's information.

29. The program storage device of Claim 25, wherein said act of discovering occupant information corresponding to said at least one internal occupant further comprises:

determining whether said at least one internal occupant is a multiservice route processor;

discovering multiserver route processor information, if said at least one internal occupant is a multiservice route processor;

determining whether said at least one internal occupant is a system processing engine;

discovering system processing engine information from said at least one internal occupant, if said at least one internal occupant is a system processing engine; and

indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.

30. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for identifying internal occupants of a communications system apparatus with an Ethernet backplane and at least one internal occupant, said method comprising:

requesting a link status from a SSP;

determining whether all of said at least one internal occupant in the communications system apparatus have been discovered;

waiting for next cycle if all of said at least one internal occupant in the communications system apparatus have been discovered;

determining whether said link status corresponds to said at least one internal occupant, if all of said at least one internal occupant in the communications system have not been discovered;

determining whether said link status is up and a slot corresponding to said link is not occupied, if said link status corresponds to said at least one internal occupant;

launching a slot discovery, if said link status is up and said slot  
corresponding to said link is not occupied;

determining whether the said link status is down and said slot  
corresponding to said link status is occupied, if the said link status is not up  
5 and the said slot is not occupied; and

identifying the said at least one internal occupant as non-operational,  
if the said link status is down and the said slot is occupied.

31. The program storage device of Claim 30, wherein said act of launching a  
slot discovery further comprises:

requesting a discovery protocol data package from said SSP;

the discovery protocol data package corresponds to said at least one  
internal occupant;

the said apparatus occupant has a valid IP address, if the discovery  
protocol data package corresponds to said at least one internal occupant;

said requested discovery protocol data package corresponds to said  
slot, if said at least one internal occupant has a valid IP address; and

discovering occupant information corresponding to said particular  
internal apparatus occupant, if the discovery protocol data package  
corresponds to said slot.

20 32. The program storage device of Claim 30, wherein said act of discovering  
occupant information corresponding to said at least one internal occupant further  
comprises :



discovering whether said at least one internal occupant is a multiservice route processor;

discovering multiservice route processor information from said at least one internal occupant, if said at least one internal occupant is a multiservice route processor;

discovering whether said at least one internal occupant is a system processing engine, if said at least one internal occupant is not a multiservice route processor;

discovering system processing engine information from said at least one internal occupant, if said at least one internal occupant is a system processing engine; and

indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.

33. A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for cyclically identifying occupants a communications system apparatus with an Ethernet backplane and at least one internal occupant, said method comprising:

requesting a discovery protocol data package from a SSP;

determining whether all of said at least one slot in the communications system apparatus have been discovered;

marking said at least one slot that have no discovery protocol information as empty, then waiting for a next cycle to begin, if all of said at

least one slot in the communications system apparatus have been  
discovered;

determining whether said discovery protocol data package  
corresponds to said at least one internal occupant, if one of said at least one  
5 slot in the communications system apparatus has not been discovered

determining whether said discovery protocol data package is  
consistent with a discovery protocol data package previously obtained, if  
the said discovery protocol data package corresponds to said at least one  
internal occupant; and

10 launching a slot discovery, if said discovery protocol data package is  
not consistent with said previously obtained discovery protocol data  
package.

34. The program storage device of Claim 33, wherein said act of launching a  
slot discovery further comprises:

15 requesting a discovery protocol data package from said SSP;

determining whether said discovery protocol data package  
corresponds to said at least one internal occupant;

determining whether said at least one internal occupant has a valid  
IP address, if the discovery protocol data package corresponds to said at  
20 least one internal occupant;

determining whether said discovery protocol data package corresponds to a slot housing said at least one occupant, if said at least one internal occupant has a valid IP address; and

discovering occupant information corresponding to said at least one internal occupant, if said discovery protocol data package corresponds to said slot.

35. The program storage device of Claim 33, wherein said act of discovering occupant information corresponding to said at least one internal occupant further comprises :

determining whether said at least one internal occupant is a multiservice route processor;

discovering multiservice route processor information from said at least one internal occupant, if said at least one internal occupant is a multiservice route processor;

determining whether said at least one internal occupant is a system processing engine, if said at least one internal occupant is not a multiservice route processor;

discovering system processing engine information from said at least one internal occupant, if said at least one internal occupant is a system processing engine; and

indicating an error for said at least one internal occupant if said at least one internal occupant is not a system processing engine.